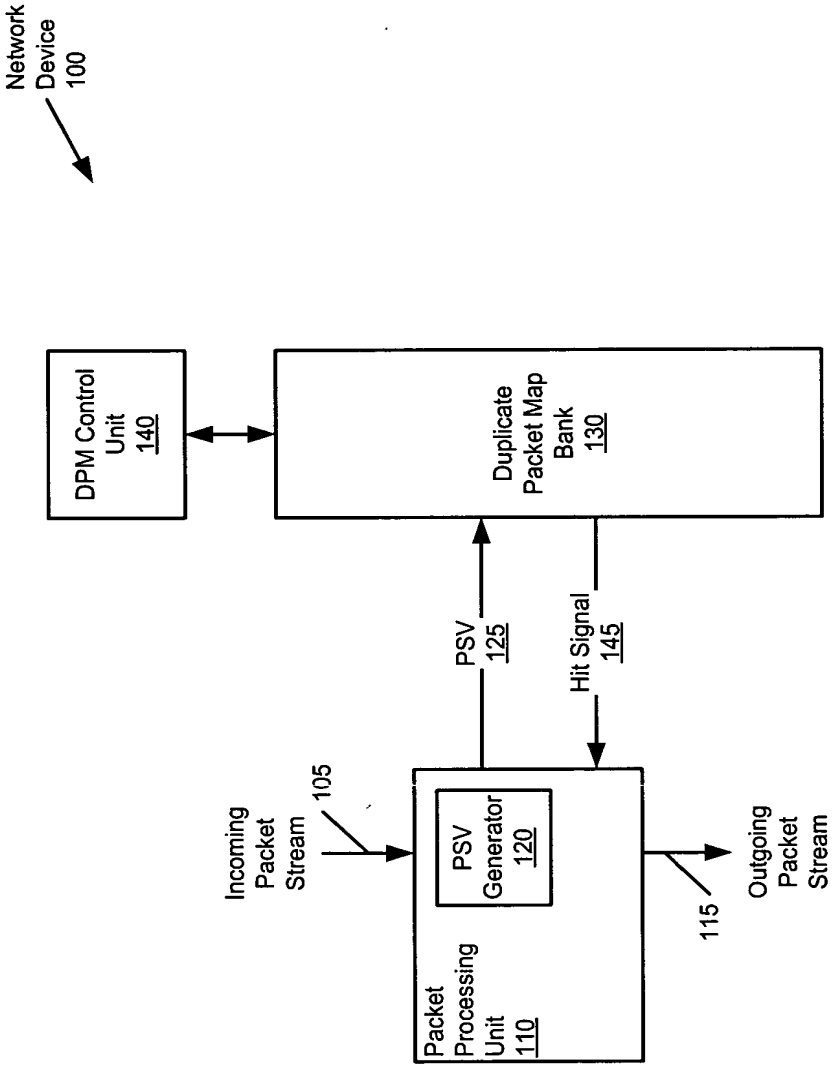
Network Device 100
DPM Control Unit 140
Duplicate Packet Map Bank 130
PSV 125
Hit Signal 145
Incoming Packet Stream 105
PSV Generator 120
Packet Processing Unit 110
115
Outgoing Packet Stream

Fig. 1

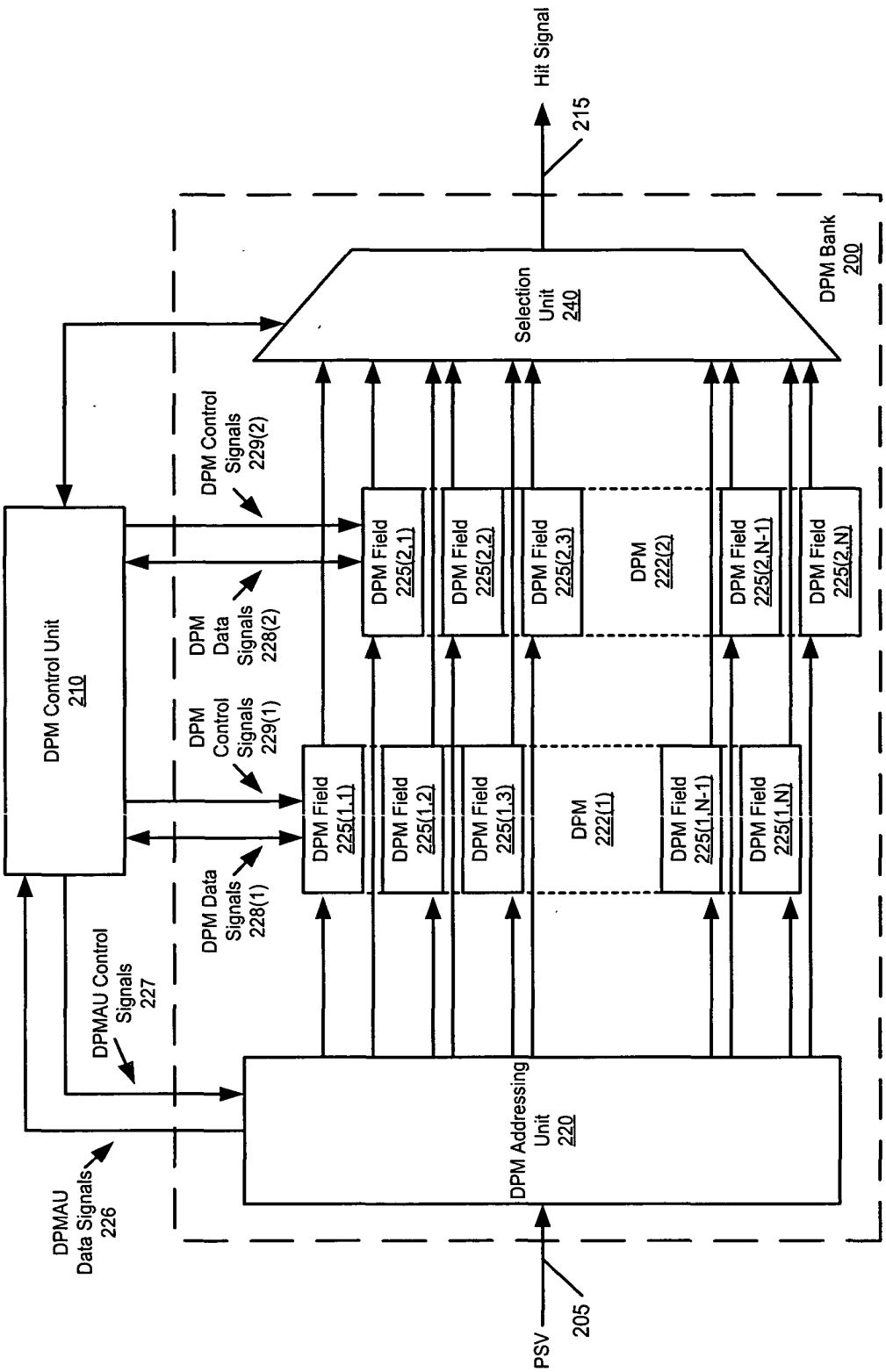
Hit Signal
215
DPM Bank
200
Selection Unit
240
DPM Control Signals
229(2)
DPM Control Unit
210
DPM Data Signals
228(2)
DPM Field
225(2,1)
DPM Field
225(2,2)
DPM Field
225(2,3)
DPM
222(2)
DPM Field
225(2,N-1)
DPM Field
225(2,N)
DPM Control Signals
229(1)
DPM Data Signals
228(1)
DPM Field
225(1,1)
DPM Field
225(1,2)
DPM Field
225(1,3)
DPM
222(1)
DPM Field
225(1,N-1)
DPM Field
225(1,N)
DPMAU Control Signals
227
DPM Addressing Unit
220
DPMAU Data Signals
226
PSV
205

Fig. 2

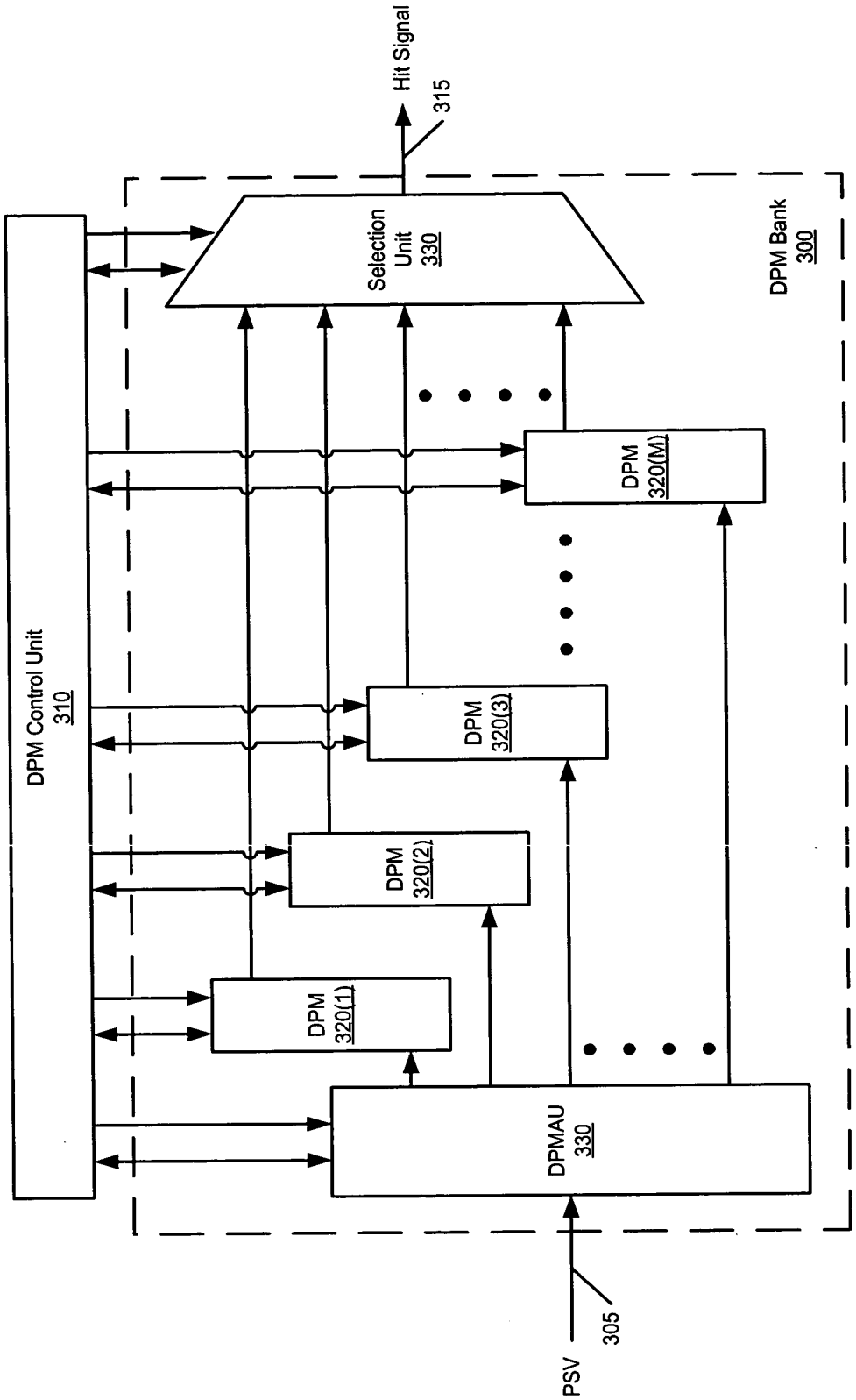
Hit Signal
315
Selection Unit 330
DPM Bank 300
DPM Control Unit 310
DPM 320(M)
DPM 320(3)
DPM 320(2)
DPM 320(1)
DPMAU 330
PSV
305

Fig. 3

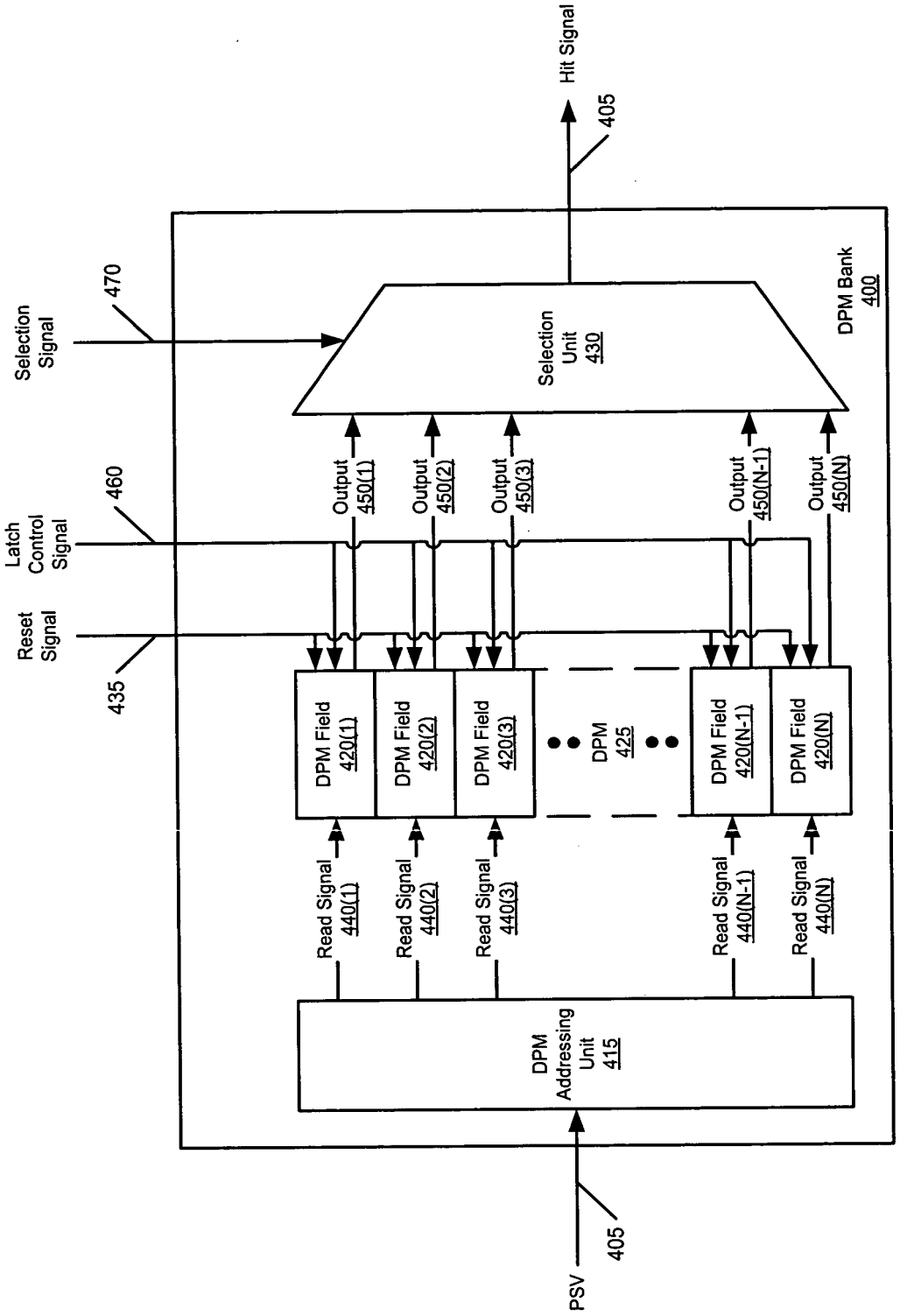
Hit Signal
405
DPM Bank
400
Selection
Signal
470
Selection
Unit
430
Output
450(1)
Output
450(2)
Output
450(3)
Output
450(N-1)
Output
450(N)
Latch
Control
Signal
460
Reset
Signal
435
DPM Field
420(1)
DPM Field
420(2)
DPM Field
420(3)
DPM
425
DPM Field
420(N-1)
DPM Field
420(N)
Read Signal
440(1)
Read Signal
440(2)
Read Signal
440(3)
Read Signal
440(N-1)
Read Signal
440(N)
DPM
Addressing
Unit
415
PSV
405

Fig. 4

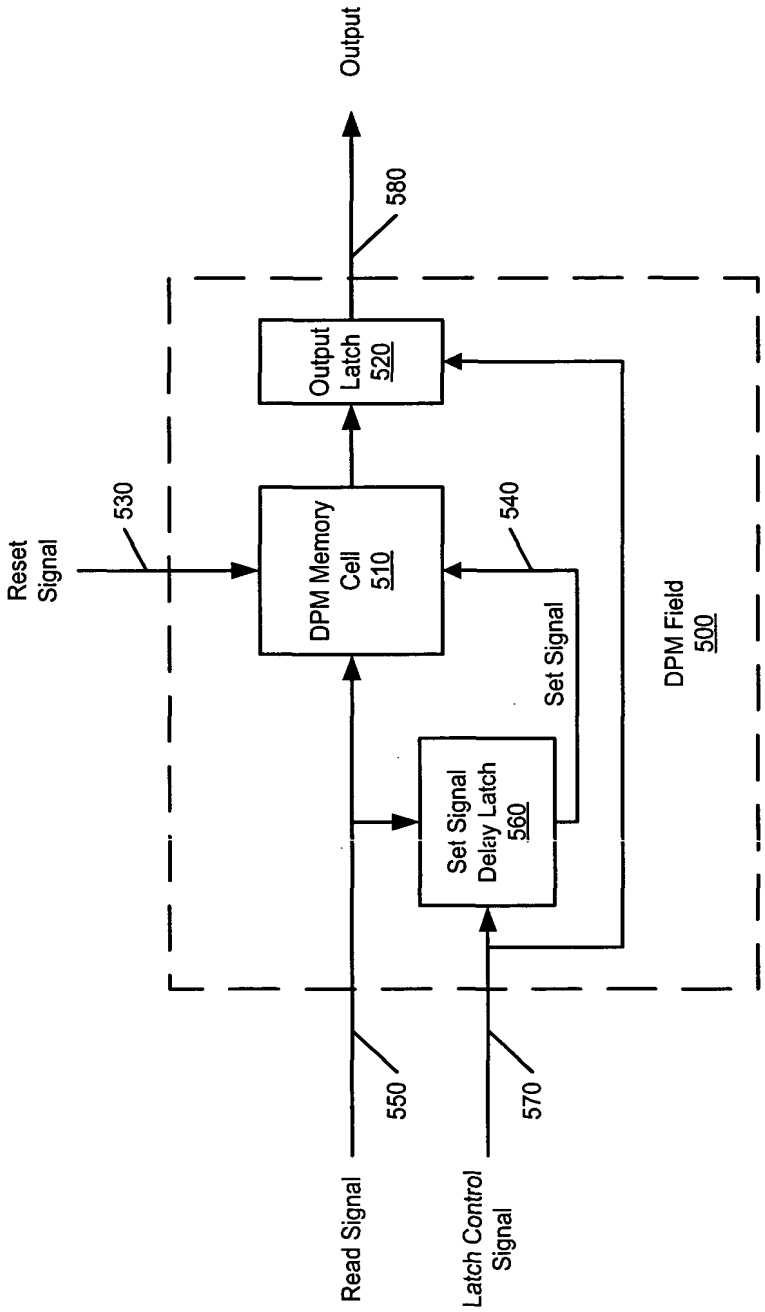
Output
580
Output Latch 520
530
Reset Signal
DPM Memory Cell 510
540
Set Signal
DPM Field 500
Set Signal Delay Latch 560
550
570
Read Signal
Latch Control Signal

Fig. 5

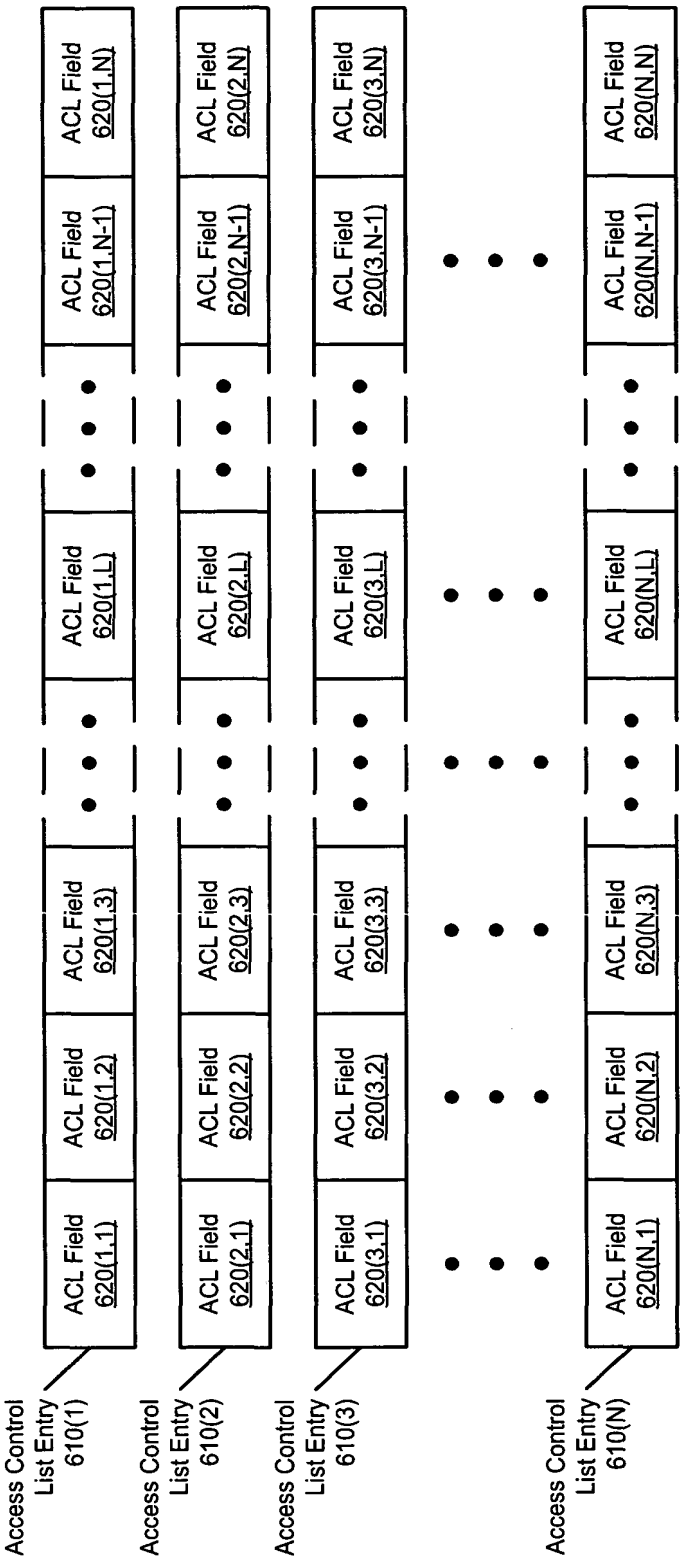
ACL
600
Access Control List Entry 610(1)
ACL Field 620(1.1)
ACL Field 620(1.2)
ACL Field 620(1.3)
ACL Field 620(1.L)
ACL Field 620(1.N-1)
ACL Field 620(1.N)
Access Control List Entry 610(2)
ACL Field 620(2.1)
ACL Field 620(2.2)
ACL Field 620(2.3)
ACL Field 620(2.L)
ACL Field 620(2.N-1)
ACL Field 620(2.N)
Access Control List Entry 610(3)
ACL Field 620(3.1)
ACL Field 620(3.2)
ACL Field 620(3.3)
ACL Field 620(3.L)
ACL Field 620(3.N-1)
ACL Field 620(3.N)
Access Control List Entry 610(N)
ACL Field 620(N.1)
ACL Field 620(N.2)
ACL Field 620(N.3)
ACL Field 620(N.L)
ACL Field 620(N.N-1)
ACL Field 620(N.N)

Fig. 6

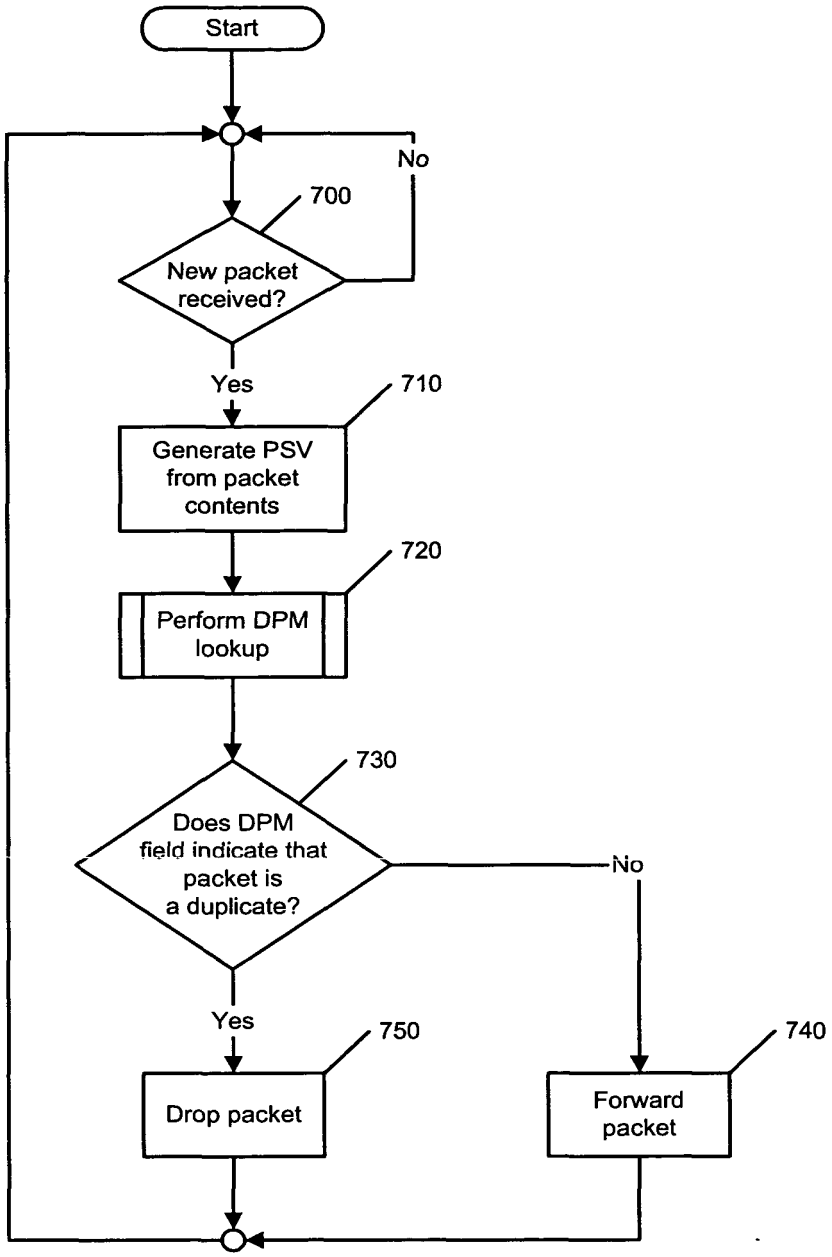
Start
No
700
New packet received?
Yes
710
Generate PSV from packet contents
720
Perform DPM lookup
730
Does DPM field indicate that packet is a duplicate?
No
Yes
750
Drop packet
740
Forward packet

Fig. 7

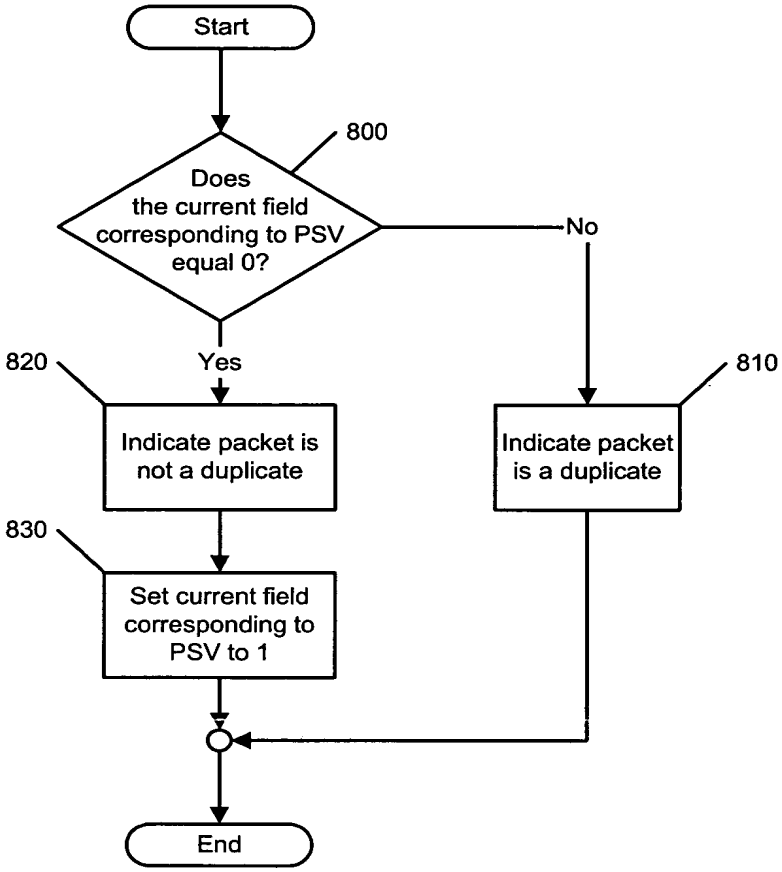
Start
800
Does the current field corresponding to PSV equal 0?
No
Yes
820
Indicate packet is not a duplicate
830
Set current field corresponding to PSV to 1
810
Indicate packet is a duplicate
End

Fig. 8

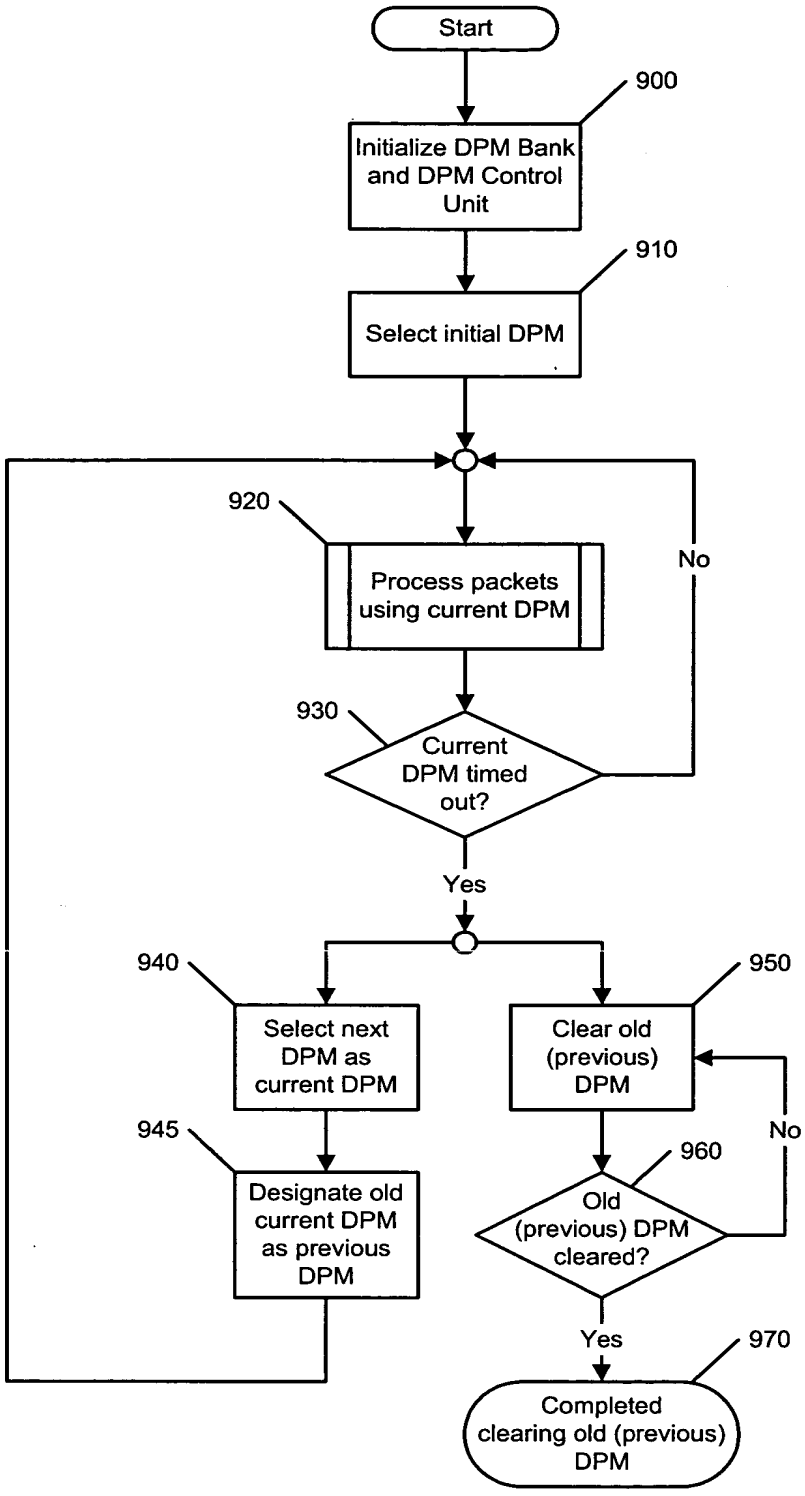
Start
900
Initialize DPM Bank and DPM Control Unit
910
Select initial DPM
920
Process packets using current DPM
No
930
Current DPM timed out?
Yes
940
Select next DPM as current DPM
945
Designate old current DPM as previous DPM
950
Clear old (previous) DPM
960
Old (previous) DPM cleared?
No
Yes
970
Completed clearing old (previous) DPM

Fig. 9

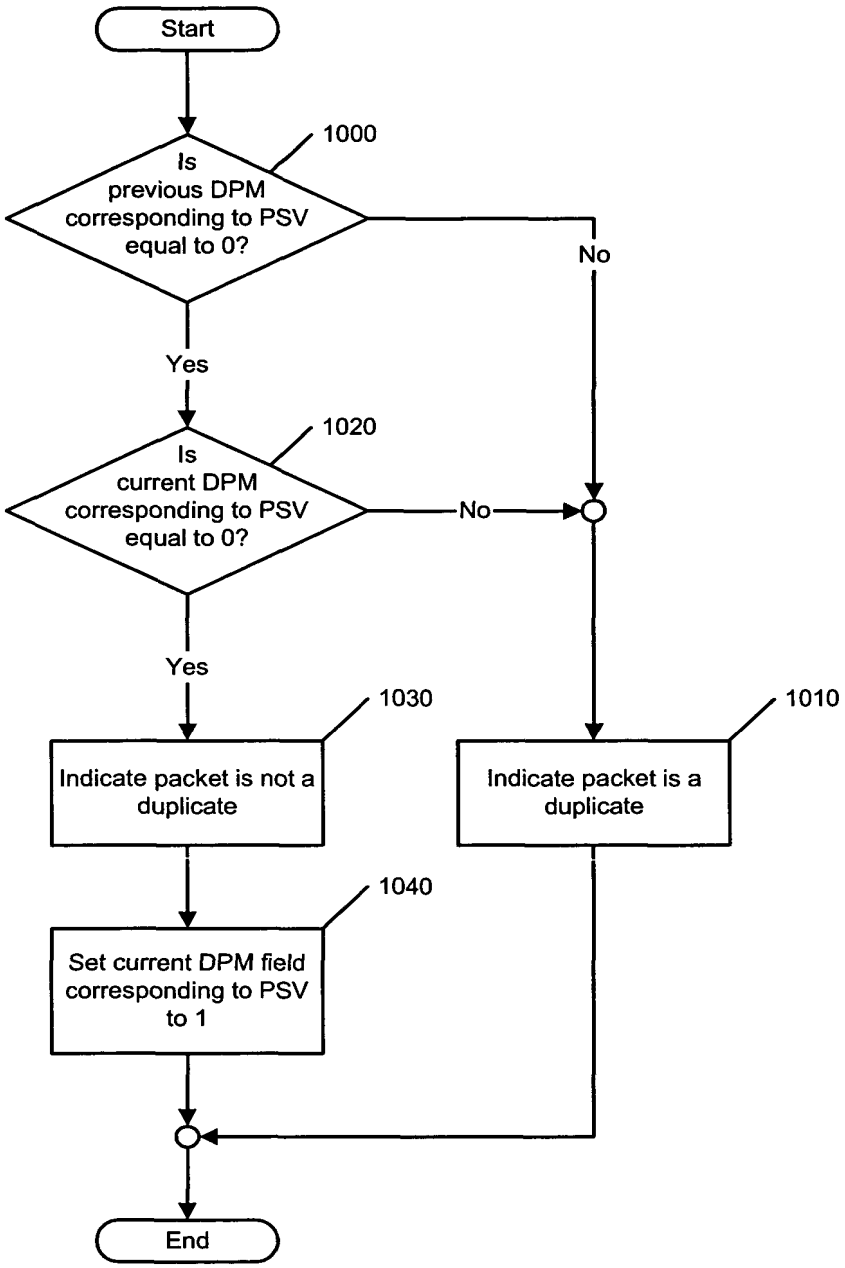
Start
1000
Is previous DPM corresponding to PSV equal to 0?
No
Yes
1020
Is current DPM corresponding to PSV equal to 0?
No
Yes
1030
Indicate packet is not a duplicate
1010
Indicate packet is a duplicate
1040
Set current DPM field corresponding to PSV to 1
End

Fig. 10